February 13, 2004

NO. 2004-

DOCKET NO D-77-20 CP (Revision 7)

DELAWARE RIVER BASIN COMMISSION

A RESOLUTION to establish an experimental augmented conservation release program for the New York City Delaware Basin Reservoirs for the period beginning May 1, 2004 and ending May 31, 2007, and to engage in discussions to develop a long-term, flexible program to manage releases from the reservoirs.

WHEREAS, Docket No. D-77-20 CP (Revision 6) expires on April 30, 2004; and

WHEREAS, it is the goal of the Parties to the 1954 Supreme Court Decree, hereafter the Decree Parties, to develop a program for protecting tail water fisheries below New York City's Delaware Basin Reservoirs, hereafter City Delaware Reservoirs, based upon sustainable sources of water, while considering overall needs in the tailwaters below the City Delaware Reservoirs and in the main stem and bay; and

WHEREAS, the Delaware River Basin Commission (DRBC), through its Flow Management Technical Advisory Committee (FMTAC) and its Comprehensive Plan update process, is considering several approaches to assess overall needs in the tailwaters below the City Delaware Reservoirs and in the main stem and bay; and

WHEREAS, Docket No. D-77-20 CP (Revision 6) provided that the New York City Department of Environmental Protection (NYCDEP) and the New York State Department of Environmental Conservation (NYSDEC) fund an update of the OASIS model and analysis of alternatives for an interim fisheries protection program for the City Delaware Reservoir tailwaters and, based on the results of this analysis, and submit by September 30, 2003 a formal proposal for consideration by the Decree Parties and the DRBC for interim fisheries protection while discussions continue toward development of a long-term flexible reservoir releases program; and

WHEREAS, the State of New York has proposed an interim reservoir releases program to maintain target flows in the tailwaters below the City Delaware Reservoirs for the period beginning May 1, 2004 and ending May 31, 2007; and

WHEREAS, Resolution 2002-33 approved a "Drought Operations Plan for Lake Wallenpaupack", implementation of which is contingent upon the Decree Parties agreeing upon a reservoir releases program for the City Delaware Reservoirs that ameliorates any adverse impact of releases from Lake Wallenpaupack under the provisions of Resolution 2002-33; and

WHEREAS, NYSDEC, in collaboration with the Subcommittee on Ecological Flows (SEF) and the FMTAC, has developed a "Monitoring Plan for the Delaware River Tailwaters, 2004-2006"; and

WHEREAS, the proposal described herein has been agreed to by all Decree Parties; now therefore,

BE IT RESOLVED by the undersigned Commissioners and Decree Parties:

1. The Decree Parties agree that development and implementation of a viable long-term program to address fisheries and other needs in the tailwaters below the City Delaware Reservoirs and in the main stem and bay requires consideration of other related issues, including interbasin transfer policy, Good Faith operations, New York City water supply needs, the DRBC Comprehensive Plan, the Basinwide Plan currently being developed, Montague flow targets, the Excess Release Quantity, and equitable apportionment of the waters of the Delaware Basin in accordance with the provisions of the 1954 Decree and permanent provisions of Docket D-77-20 as revised.

2. The Decree Parties commit to continuing discussions with the aid of the FMTAC guided by the Comprehensive Plan and the Basinwide Plan currently under development, with the goal of developing and implementing by May 31, 2007 a long-term, flexible program to manage releases from the City Delaware Reservoirs to better address fisheries in the tailwaters below the City Delaware Reservoirs. The long-term program must take into account needs in the main stem and the bay as well as the related issues recited in Paragraph 1 above.

3. There is hereby established, for thermal and habitat protection in the tailwaters below the City Delaware Reservoirs, for the period beginning May 1, 2004 and ending May 31, 2007, a Habitat Protection Bank (HPB), with the following provisions:

   A. A "Habitat Protection Bank (HPB)" of 20,000 cubic feet per second days (cfs-days) is established, which shall consist of: 5,700 cfs-days, provided from the Excess Release Quantity (ERQ); the Thermal Release Bank (TRB) of 9200 cfs-days; and a Supplemental Release Bank (SRB) of 5,100 cfs-days. Water from the ERQ shall be credited on June 15, and any water remaining from that quantity shall expire on March 15 of the following year. The 9,200 cfs-days TRB and 5,100 cfs-days SRB shall be credited on May 1, and any water remaining in these banks shall expire on April 30 of the following year. In any year during which the Drought Operations Plan for Lake Wallenpaupack is not in effect, the HPB shall be limited to 16,000 cfs-days, consisting of: 3,420 cfs-days from the ERQ; a TRB of 9,200 cfs-days; and an SRB of 3,380 cfs-days. Waters from the ERQ not contributed to the HPB shall be utilized to provide a proportionally-reduced increase in the Montague flow objective

according to the current procedures, or may be banked in accordance with the procedures outlined in the Lower Basin Drought Management Plan.

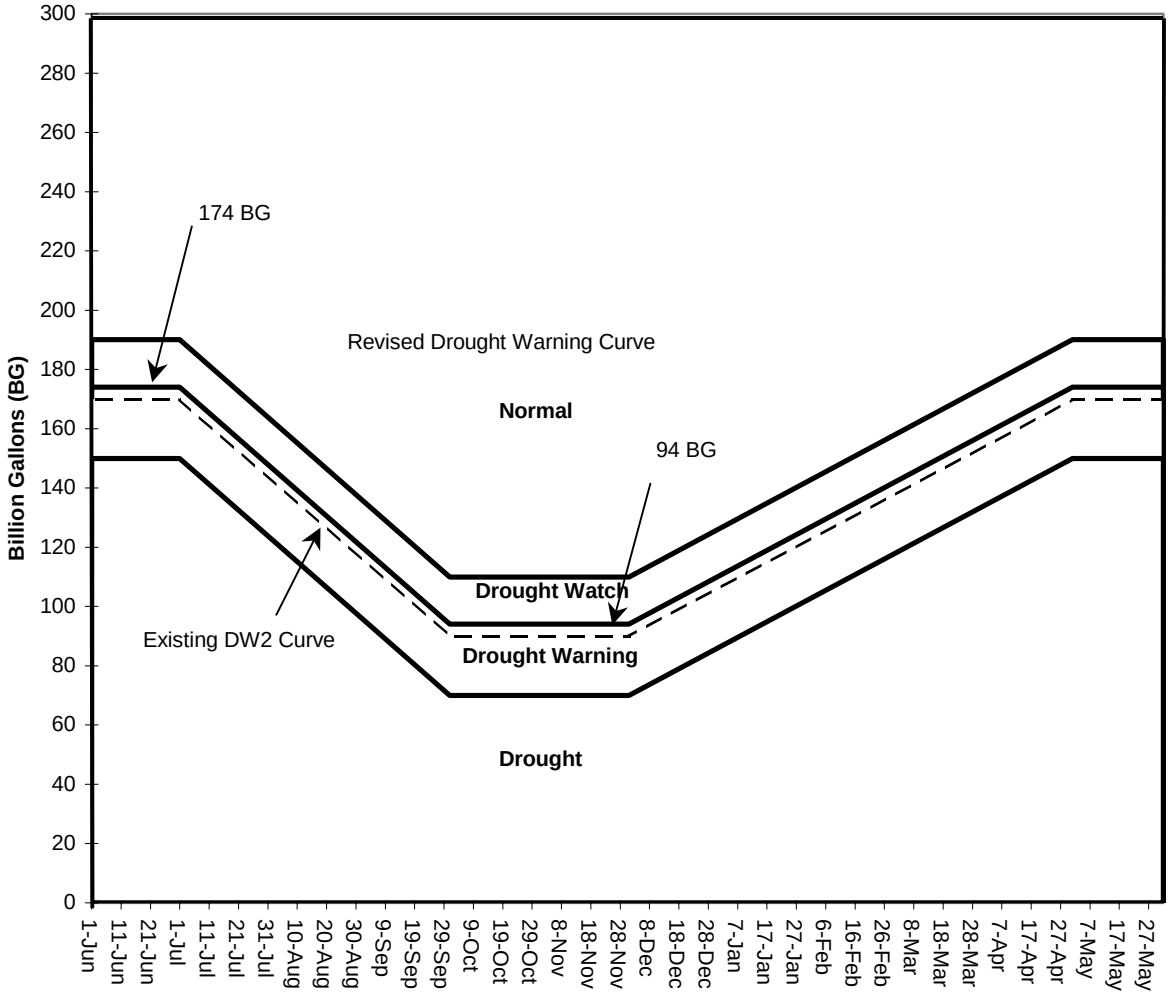
The TRB shall be used to direct releases during May 1 through October 31 so as to prevent to the maximum extent possible any instantaneous water temperature higher than 75° F or any daily average temperature higher than 72° F in the designated downstream areas as determined from measurements at the Hale Eddy, Harvard, Bridgeville, Hancock and Hankins gaging stations. Designated downstream areas shall mean the following waters:

- The West Branch Delaware River between Cannonsville Reservoir and Hancock, NY
- The East Branch Delaware River between Pepacton Reservoir and the confluence of the East Branch Delaware River and Beaverkill Creek
- The Delaware River between Hancock, NY and Hankins, NY
- The Neversink River between Neversink Reservoir and Bridgeville, NY

Any quantity of water remaining in the TRB after October 31 may subsequently be used for habitat protection.

B. Upon entry into Drought Watch, as defined in Docket D 77-20 CP Revision No. 4 (Figure 1), the remaining combined TRB and SRB shall be reduced by 15 percent.

Figure 1.
New York City Delaware Basin Reservoir Experimental Rule Curve



C. Upon entry into Drought Warning (Figure 1), the remaining combined TRB and SRB shall be reduced by an additional 15 percent.

D. Upon entry into Drought (Figure 1), habitat and thermal protection may be provided, except as noted in Paragraph L, subject to the availability of the ERQ portion of the HPB and at the discretion of the down-basin parties to the 1954 U. S. Supreme Court Decree. Any water remaining in the TRB and SRB shall be suspended until storage in the City Delaware Reservoirs is 25 billion gallons (BG) above the Drought Watch line for 15 consecutive days. The most severe set of conservation releases and flow targets realized as described in Paragraph E through L will remain in effect until

storage in the City Delaware Reservoirs is 25 BG above the Drought Warning line for 15 consecutive days.

E. At the direction of the NYSDEC, the HPB may be used to meet the flow targets in Table 1.

Table 1
Habitat Protection Bank Flow Targets

	Flow Target (cfs)			
Target Location	*Normal*	*Drought Watch*	*Drought Warning*	*Drought**
West Branch Delaware R At Hale Eddy	225	190	160	145
East Branch Delaware R At Harvard	175	150	120	115
Neversink River At Bridgeville	115	100	80	75

** Subject to the availability of the ERQ portion of the HPB and at the discretion of the down-basin parties to the 1954 U. S. Supreme Court Decree, or availability of the AB.*

F. Conservation releases from the City Delaware Reservoirs shall be as specified in Table 2 with additional releases directed by the NYSDEC to maintain tributary target flows as specified in Paragraph E.

Table 2
Conservation Releases

	Conservation Release (cfs)			
Reservoir	*Normal*	*Drought Watch*	*Drought Warning*	*Drought*
Cannonsville	45	38	32	23
Pepacton	35	30	25	19
Neversink	25	21	18	16

G. The difference between releases resulting from reservoir release operations specified in Paragraphs E and F, and the augmented conservation releases specified in Table 3, shall be debited or credited to the HPB. However, a negative balance in the HPB is not allowed.

Table 3
Augmented Conservation Releases

Reservoir and Operation Dates	*Release Rate (cfs)*			
	Normal[(1)]	*Drought Watch*[(2)]	*Drought Warning*[(3)]	*Drought*[(3)]
Cannonsville				
1/1 – 4/15	45	38	8	8
4/16 – 5/31	45	38	23	23
6/1 – 9/15	160	136	23	23
9/16 – 11/30	45	38	23	23
12/1 – 12/31	45	38	8	8
Pepacton				
1/1 – 4/7	45	38	6	6
4/8 – 4/30	45	38	19	19
5/1 – 5/31	70	60	19	19
6/1 – 8/31	95	81	19	19
9/1 – 9/30	70	60	19	19
10/1 – 10/31	45	38	19	19
11/1 – 12/31	45	38	6	6
Neversink				
1/1 – 4/7	25	21	5	5
4/8 – 4/30	25	21	15	15
5/1 – 9/30	53	45	15	15
10/1 – 10/31	25	21	15	15
11/1 – 12/31	25	21	5	5

(1) Release rates as specified in DRBC Docket D-77-20 CP (Rev. 4).
(2) 85 percent of the normal conservation release rates.
(3) Basic conservation release rates as specified in Table 5.

H. All other conditions shall continue as specified in Table 3**.**

I. No additional water beyond that specified in this resolution will be made available under any circumstances**.**

J. In order to preserve the HPB, a schedule reflecting a sliding scale of diminishing allowable releases shall be implemented as the bank gets progressively depleted. The sliding scale is especially designed to preserve water for thermal stress relief.

Specific Conditions

(1) The combined bank gives first priority to thermal releases.

(2) Time-varying HPB thresholds are defined according to Table 4. When the HPB storage is below the thresholds in Table 4, thermal releases may be made, but flow targets are suspended and only conservation releases as specified in Table 3 can be made.

Table 4
Flow Target Suspension
Thresholds

Date	*Threshold (cfs-days)*	
May 1 - June 1	12,300	12,300
June 2 – 14	11,300	11,300
June 15	17,000	14,580
June 16 – July 1	16,000	12,000
July 2 – August 1	10,000	6,000
August 2 –Sept. 1	4,000	1,000
Sept.2 - Oct. 31	0	0

K. In order to assure the delivery of high quality drinking water to New York City and neighboring outside communities, it may be necessary from time to time to decrease or cease the diversion of water from Cannonsville Reservoir, and increase the diversion of higher quality water from Neversink Reservoir. At such times, in order to conserve storage of Neversink Reservoir water, flow targeting at Bridgeville, N.Y. will be suspended and releases will be reduced to the augmented conservation release rates specified in Table 3; these program modifications will remain in effect until such time as Cannonsville Reservoir water quality improves to a level satisfying the criteria below. Prior to initiating such an action, the City of New York will consult

with the Decree Parties. The suspension and re-initiation of flow targeting at Bridgeville will be based upon either of the following water quality criteria:

(1) The diversion from Cannonsville Reservoir, based upon a 5-day running average, exceeds any of the following trigger levels for five key water quality parameters:

- Total Phosphorus = 20 µg/L
- Fecal coliform = 20 CFU/100 mL
- Total Coliform = 1000 CFU/100 mL
- Turbidity = 5 NTU
- Total Phytoplankton = 1000 SAU/mL; or

(2) The water quality in the diversion from Cannonsville Reservoir, based upon a 5-day running average, exceeds 50% of any parameter indicated in "(1)" above and the difference in that value of the parameter is greater than 200% of the value of the same parameter in the diversion from Neversink Reservoir, based upon 5-day running averages.

(For example, if the turbidity exceeds 4 NTU in the diversion from Cannonsville Reservoir and is less than 2 NTU in the diversion from Neversink Reservoir, NYCDEP may temporarily suspend the flow target at Bridgeville and return to conservation releases as described in Table 3)

L. Should combined storage in Neversink, Pepacton, and Cannonsville Reservoirs drop below 25% usable capacity (i.e., less than 67.7 BG), water would be available for thermal mitigation by NYSDEC, from the ERQ bank, subject to the discretion of the downbasin parties to the 1954 U.S. Supreme Court Decree, and flow targeting at Bridgeville, Harvard, and Hale Eddy will be suspended. Conservation releases will be made as specified in Table 5. Under this condition, there will be no debiting or crediting of the HPB, unless the ERQ has been made available, in which case there will be debiting of the ERQ portion of the HPB**.**

Table 5
Basic Conservation Releases

Reservoir and Operation Dates	*Release Rate (cfs)*
Cannonsville	
4/1 – 4/15	8
4/16 – 11/30	23
12/1 – 3/31	8
Pepacton	
4/1 – 4/7	6
4/8 – 10/31	19
11/1 – 3/31	6
Neversink	
4/1 – 4/7	5
4/8 – 10/31	15
11/1 – 3/31	5

4. NYSDEC shall conduct an evaluation in accordance with the NYSDEC "Monitoring Plan for the Delaware River Tailwaters, 2004-2006". The evaluation shall assess the response of tailwater biota, particularly brown and rainbow trout populations, to the experimental release and target flow protocols established herein. The evaluation plan shall include the following components: evaluation need(s), purpose and scope, objectives, approach and methods, evaluation benefits, content of planned reports, evaluation schedule, personnel needs, budget, and source of funds. Where appropriate, results of previous investigations conducted as part of the historical experimental release program shall be included in the evaluation plan.

NYSDEC shall, on February 28, 2005 and February 28, 2006, submit to the DRBC and to the Decree Parties annual interim progress reports on the study. The initial report to be submitted on February 28, 2005 shall incorporate summary data and conclusions obtained since the experimental release program was initiated in 1977. Discussion of such reports shall be included as an agenda item at annual meetings of the Delaware River Master Advisory Committee.

By December 31, 2006, NYSDEC shall submit a draft scientific report, which shall include an abstract or executive summary, statements of purpose, scope and objectives, procedures, results, conclusions, recommendations for additional work if warranted, and supporting literature, and shall describe effects on the fishery and other aquatic resources resulting from implementation of this resolution.

By May 31, 2007, NYSDEC shall submit a final scientific report.

5. In any year during which the Drought Operations Plan for Lake Wallenpaupack is in effect, if on May 1 the basin is not in Normal (see Figure 1), or if after May 1 the basin enters Drought Watch, an Amelioration Bank (AB) of 3,000 cfs-days will be created. During Drought Watch and Drought Warning (see Figure 1), a total of releases not to exceed 1,000 cfs-days may be made from the AB to meet the target flows according to Table 1. During Drought (see Figure 1), releases may be made from the remaining AB to meet target flows according to Table 1. Any remaining AB will expire on April 30.

6. In any year during which the Drought Operations Plan for Lake Wallenpaupack is not in effect, releases for flow targeting will only be made from Cannonsville Reservoir for targets at Hale Eddy, to conserve the available bank. No releases will be made for flow targeting from Neversink or Pepacton Reservoirs. Releases from Neversink and Pepacton Reservoirs will be in accordance with Table 3.

7. This resolution shall take effect on May 1, 2004 and shall expire on May 31, 2007, or earlier either upon a determination by the down-basin parties to the 1954 Supreme Court Decree that the requirements of Paragraph 4 have not been met or when an alternative long-term tailwaters fisheries program, unanimously approved by the Decree Parties, is implemented.

BY THE COMMISSION

ADOPTED:

Consent to Action by

Delaware River Basin Commission

Consent of the parties to the U.S. Supreme Court Decree in *New Jersey v. New York*, 347 U.S. 995 (1954) to the action of the Delaware River Basin Commission approving Resolution No. 2004-## and amending the Comprehensive Plan with respect to experimental modifications to the schedule of release rates from Cannonsville, Pepacton and Neversink Reservoirs.

State of New Jersey	Date	City of New York	Date
State of Delaware	Date	State of New York	Date
State of Delaware	Date	Commonwealth of Pennsylvania	Date